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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,089	12/14/2005	Tomi Veikonheimo	1034382-000004	9066

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EXAMINER	
VENNE, DANIEL V	

ART UNIT	PAPER NUMBER
3617	

NOTIFICATION DATE	DELIVERY MODE
06/15/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/539,089	VEIKONHEIMO ET AL.	
	Examiner	Art Unit	
	DANIEL V. VENNE	3617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/29/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. An amendment was received from applicant on 4/29/2009.

2. Claims 1-10 and 12-16 are pending in the application.

3. Claims 1 and 12 are amended.

4. Claim 11 is canceled.

5. Claims 15 and 16 are new.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-10 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varis (WO 0154971 A1), in view of Parsons (GB 9792/NO 10907; with these two references presenting the same disclosure, as indicated in the previous office action), and further in view of Akimoff (CA 245576), disclosed by applicant. Varis discloses an arrangement in a counter rotating propulsion system (similar to the arrangement in Fig. 1 of applicant's disclosure that applicant indicates is “realized” with counter rotating propellers (CRP), see page 5 of applicant’s specification), comprising an aft propeller installed on a thruster [4] rotatable about a vertical axis, and a forward propeller [3] installed on a shaft [2] or on a thruster, whereby the aft propeller and the forward propeller have opposite directions of rotation and the aft and forward propellers are arranged opposing each other, the cap on the forward propeller [3] having a length,

each of the propellers having a hub with a cap, the hub and cap associated with the forward and aft propellers are arranged opposing each other. Varis does not disclose the at least two equally distributed flow plates arranged on the cap of the forward propeller radially projecting from the cap, and the flow plates on the whole length of the forward cap and link up to each other and extend beyond an aft facing end of the cap. Parsons discloses a propeller hub (boss) cap (cone) (Figs. 3-4) comprising a plurality of equally spaced flow plates (blades or vanes) [v] projecting from the cap in a radial direction with no inclination and without extending beyond the diameter of the cap for reducing cavitation effects and enhancing flow characteristics. Parsons does not disclose the flow plates on the whole (entire) length of the cap, but is considered to disclose the limitations of claims 2-6, 10, 13 and 14 based on Figs. 5-6. Regarding claims 7 and 8, Parsons discloses the flow plates attached to the hub cap but does disclose the method of attachment, whether integral (integrated) or fixed to the cap by welding or bolts; however, it would have been obvious to one of ordinary skill in the art to make the flow plates integrated with the hub cap for ease of manufacture and assembly, and it would have also been obvious to one of ordinary skill in the art to affix the flow plates to the hub cap using any known means such as welding or bolts as a mere design choice depending on material selection and the structural characteristics desired for the attachment means. Parsons also indicates (see second to last paragraph of specification, lines 40-42) that one beneficial result of the plates (vanes or blades) about the hub cap (cone) is that water more easily closes in and presses (imparts pressure) on the cap (cone abaft the propeller boss), thus imparting additional

forward thrust to the shaft; an extension of the vanes or blades beyond an aft facing end of the cap would enhance this beneficial result by allowing water to even more effectively close in and press on the cap to impart pressure and additional forward thrust to the shaft. Akimoff discloses flow plates [17] that link up to each other and extend beyond an aft facing end of a propeller hub cap [13] (see Figs. 3-6); the flow plates enhances flow of water about the propeller in order to improve propeller performance (see pages 1-3 describing advantages presented by the Akimoff cap or 'fairwater'). Akimoff also discloses flow plates extending substantially the whole length of the cap (see Fig. 5); the cap includes flange [14] which is indicated as a 'suitable fastening means' for the cap [13]; it would have been obvious to one of ordinary skill in the art to utilize a fastening means which would eliminate the flange, thereby providing the flow plates extending the whole length of the cap; the extension of the flow plates any length of the cap would have been considered obvious to one of ordinary skill in the art as a matter of design choice depending on the specific flow characteristics desired for the flow plates. In view of the foregoing, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to provide a propeller cap with flow plates for the forward propeller hub of Varis that would have the flow plates linking up to each other and extending beyond an aft facing end of the hub cap and extend the whole length of the cap, to create the invention as claimed by applicant. The rationale would have been to reduce or minimize cavitation effects and provide for streamlined flow of water past the hub cap. Making the flow plates of the forward propeller hub cap of such a combination link up to

each other and extend beyond an aft facing end of the cap and extend the whole length of the cap would provide the expected result of enhanced water flow for the propeller arrangement depending on the specific flow characteristics desired. The extent to which the flow plates link up to each other, as well as the amount of extension of the flow plates along the cap or the exact dimensions of the plates, would have been considered obvious to one of ordinary skill in the art as a matter of engineering design choice depending on the specific flow characteristics desired for the propeller arrangement. Although the references alone or in combination do not explicitly disclose that the flow plates are constructed and arranged to eliminate cavitation in the separation zone or the space between the forward and aft propellers when the aft propeller is not co-axial with the forward propeller; the combination of references is considered to disclose all claimed structural features and limitations recited by the applicant and the structural features and limitations disclosed are considered capable of such function since the combination would eliminate (at least in part) cavitation effects in the space between the forward and aft propeller when the forward and aft propellers are arranged as to not be exactly co-axial with each other. Regarding claims 15 and 16, Parsons in Fig. 6 discloses that the flow plates do not extend beyond the maximum outer diameter of the flow cap. The amount of extension of the flow plates beyond the maximum diameter of the cap would have been obvious to one of ordinary skill (similar to that described above for the extension of the flow plates along the length of the cap) as a matter of design choice depending on the specific flow characteristics desired for the propeller arrangement in such a combination. Similarly, the diameter, number,

position and method of attaching the flow plates, would all be considered obvious to one of ordinary skill in the art to which the subject matter pertains as a matter of engineering design choice depending on the desired performance and strength characteristics.

Response to Arguments

8. Applicant's arguments with respect to the claims have been considered but are essentially moot in view of the amendments to the claims and the new ground(s) of rejection presented above in this office action. However, regarding applicant's specific arguments regarding the flow plates extending the whole or entire length of the forward or second cap, the arguments are specifically addressed in the rejection above.

9. Regarding applicant's specific arguments with respect to the declaration submitted under 37 CFR 1.132 filed on 12/8/2008 that one of ordinary skill in the art would have been led away from the combination presented in the previous office action, the examiner disagrees for the reasons presented in the previous office action as well as for the reasons provided above in this office action. The amount of surface area and extension of flow plates beyond the maximum diameter of the cap or along a length of the cap would have been considered obvious to one of ordinary skill in the art as a matter of engineering design choice for the reasons presented in the rejection above.

Conclusion

10. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 4/29/2009 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS**

MADE FINAL. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel V. Venne whose telephone number is (571) 272-7947. The examiner can normally be reached between 7:30AM - 4:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on (571) 272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DVV

/Lars A Olson/

Primary Examiner, Art Unit 3617